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ABSTRACT

Arguing that much of the information needed in the future will be available only online, using computers, modems, and telephone lines, this four-part guide is designed to provide the basic information on online communication that is needed by beginners. The introduction to the guide includes a definition of online communication, a rationale for teaching online activities, and a few words of advice for the teacher who is getting started. Focusing on online applications, the first of four chapters describes online uses (e.g., electronic messaging, research and reference, and other curriculum- and education-related applications) and courseware packages designed for use in schools. Concerned with instructional strategies, the second chapter outlines learner outcomes and curriculum activities designed to help teachers integrate online skills into the curriculum, and suggests activities that use electronic messaging or online searching for use in language arts projects, science/problem solving projects, and social studies projects. The third chapter discusses basic hardware and software needed to begin using online communication, describes the use of modems, and provides information on communications software programs and vendors. A telecommunications budget worksheet is included. The fourth chapter provides an annotated listing of 12 selected online services, each including a source for further information. A glossary of online communications terms and a list of selected journal articles and journals on online communication are included to assist teachers in getting started online. (SD)

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ONLINE FOR INFORMATION

INTEGRATING TECHNOLOGY SERIES

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ONLINE FOR INFORMATION

INTEGRATING TECHNOLOGY SERIES

February 1989

Minnesota Department of Education
Instructional Design Section

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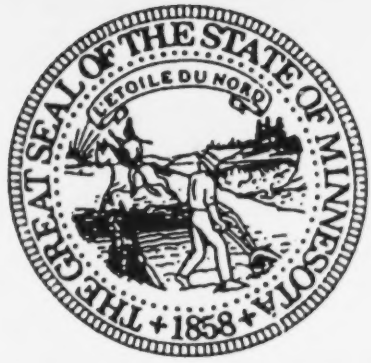

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INTRODUCTION

The Minnesota Department of Education has received many requests for online communication information. This guide was created to provide the basic information needed by beginners.

What is online communication?

Online communication is a form of telecommunications. Generally, any telephone conversation could qualify as a form of telecommunication, since the term means communicating at a distance. But in computer language, telecommunication usually means telephone communication between computers. All you really need to "telecommunicate" is a phone line, computer, modem and communication software.

Why teach online activities?

Futurists project that by the year 2000, sixty percent of our jobs will have management components and a need to access information. Much information that will be necessary in the future will only be available online, using computers, modems and telephone lines. Written communications and compositions, messages, conferences and many other projects will be exchanged online. Information, journals and databases will be available only online because of the database size and the need for constant updating of the information. Students sitting at a computer, with a modem and the right connection, may access this information and communicate with anyone in the world. Through the use of technological tools, they have access to and can share information with people outside their realm of personal communications.

The new expectations for education in the information age are challenges for our schools. They must recognize and respond to them effectively. Online activities are excellent ways of teaching such important skills and techniques as:

- Acquiring Information
- Applying Information
- Organizing Information
- Communicating Information
- Interpreting Information
- Generating Information
- Validating Information
- Evaluating Outcomes

By integrating these types of activities into the curriculum, students become involved in higher order thinking such as concept development, problem solving, decision making, valuing and critical and creative thinking. Online activities allow students to see that knowledge is not a finite resource, but one that can be expanded to create new kinds and combinations of information and knowledge.

Do I have a responsibility for teaching about online communication?

There is no doubt that schools and teachers have a responsibility to help their students learn about the sources, processes, advantages and problems of accessing, using and sharing information. That has always been a major educational goal. Schools now need to integrate the use of online communications into the curriculum. Today's students must learn to access, evaluate and use electronic information effectively; a basic skill, both now and in the future.

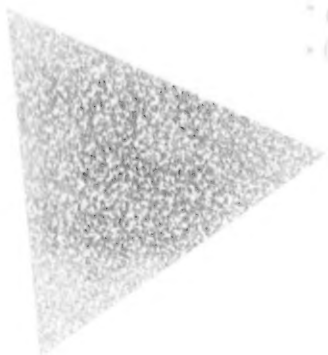
How do I get started?

After reading this guide, selecting a computer and modem, purchasing a communications program and arranging for phone connections, you will own everything needed to get online. Follow the directions that come with the modem. Read the communications program documentation. Do not be afraid to experiment. Nothing will break if the wrong key is pressed.

Chapter 1

ONLINE APPLICATIONS

- *Online Uses*
- *Courseware*



ONLINE APPLICATIONS

ONLINE USES

What Can You Do Online?

The following are ways that students and educators can use online telecommunications:

ELECTRONIC MESSAGING

Bulletin Board System

A bulletin board system, often called BBS, is a message system for posting or leaving general bulletins or announcements. These messages might be announcements of group meetings, items for sale, or a list of other bulletin board members in the area. Many boards offer ongoing columns on topics such as sports, creative writing, local news or even trivia contests. For example, The Connection has a menu that includes financial news, Dow Jones quotes, international news and up-to-date entertainment news. Use of electronic bulletin boards is limited only by the imagination of its users.

Electronic Mail

Electronic Mail, often called E-mail, allows messages to be sent by computer. Electronic messaging is usually a subscription service of a computer network. Many local networks or bulletin boards offer E-mail free of charge. By using or subscribing to a computer network, personal messages or data may be exchanged with other system users. Since messages are sent and stored until they are read, E-mail users can avoid playing "telephone tag." In many cases, this type of communication is cheaper, faster and more reliable than regular mail or phone.

Forums

Forums are electronic discussions and conferences where people with similar interests communicate facts, information and items of concern. They can range from local to worldwide, depending on which network is used. In Minnesota, a common network used by educators to communicate and discuss items of interest is MIX (McGraw-Hill Information EXchange).

RESEARCH AND REFERENCE

Online Searching

Although electronic messaging can provide a lot of information, more traditional research tasks can be carried out by online searching. Information stored in a computer database might be compared to records of information stored in a file cabinet. By going online, you can access those files and have needed information sent to your computer. Some people use this feature to transfer public domain software. Other online searchers may be more interested in obtaining a bibliography, book chapter or magazine article. There are many database services available for educators and students to use online. Chapter 4 contains a listing of some databases and online networks currently being used in Minnesota schools, e.g., ERIC.

Personal Benefits

There are many benefits for educators using an online communication system. Teachers are able to travel beyond their own classrooms and schools to conveniently communicate with other educators. Teachers can now share teaching strategies or discuss recent trends and developments in education with a large and diverse group of educators. For example, a teacher may want to learn about new uses for his or her video camera. They can ask questions electronically of other teachers from around the country and get replies quickly. Answers, questions and discussions can be customized to the needs of the teachers.

Teachers can also use electronic communications to coordinate classroom projects such as writing and data exchanges between their students and those from distant geographic locations. These types of projects can enhance the existing curriculum because they allow the teacher to easily bring into his or her classroom ideas, information and resources that are real and motivating to students.

Electronic teacher mentoring programs are also being explored where new or preservice teachers can maintain contact and get feedback from a mentor educator online. This technology has provided school districts, for the first time, with economical statewide, national and international interaction with other educators, vendors and experts. Online telecommunication networks are extensive resources that can benefit the professional growth of teachers and assist the school district in maintaining a connection to current educational ideas and information.

Administrators and other school staff may also benefit by using online communications. It is often difficult and expensive to schedule meetings with other administrators on a regional, statewide or national basis. With electronic conferencing and electronic mail, discussions can take place continuously. For example, a principal or superintendent can discuss relevant issues with colleagues in similar geographic or demographic situations on an ongoing basis without meeting face to face. Online communications also provide excellent follow-up discussions and evaluations to conferences or meetings. This provides the opportunity to continue discussing issues or topics presented without the cost or time involved in actually meeting.

COURSEWARE

Kid Mail

An electronic mail simulation for students to practice writing, sending and receiving E-mail. Kid Mail was designed to stimulate student writing as well as prepare students for the information age. Kid Mail can be used for modemless communication between or within schools.

AVAILABLE FROM:
CUE, Inc.
Softswap
P.O. Box 2087
Menlo Park, CA 94026
$10

Electronic Mailbag

An interactive electronic mail simulator designed as an introduction to the capabilities and use of electronic mail. A minicurriculum includes materials for overhead transparencies, classroom activities and lesson plans.

AVAILABLE FROM:
Exsym
301 North Harrison Street
Building B, Suite 435
Princeton, NJ 08540
$49.95

The Electronic Village

A simulation that can help users learn what an electronic bulletin board is and how it operates. The program stresses the concept of electronic messaging as an "electronic village," a new way to link people, ideas and information. The ethics of proper online communication use and what it takes to set up your own message system are also included. This program allows hands-on experience with very little setup or preparation time for the teacher. The Electronic Village is site copyable with a licensing agreement.

AVAILABLE FROM:
Exsym
301 North Harrison Street
Building B, Suite 435
Princeton, NJ 08540
$79.95

Going Online

A 16-minute color videotape introduces the world of online information featuring The Source, BRS and Dialog. The tape explains the purpose and process of using different online data sources and demonstrates a specific search strategy using Dialog.

AVAILABLE FROM:
Learned Information
143 Old Marlton Pike
Medford, NJ 08055
$79.95

Information Connection

A software package which includes a tutorial showing how to use a modem, a simulated online session, review of commonly used terms and a menu-driven section which serves as online communication software.

AVAILABLE FROM:
Minnesota Department of Education
682 Capitol Square Building
550 Cedar Street
St. Paul, MN 55101
Free

Information Focus

A simulated online system with step by step lessons which are structured to fit single class periods. Using software and workbook activities, students progress from the basics of logging on to sophisticated keyword searches.

AVAILABLE FROM:
Random House School Division
Department 430
400 Hahn Road
Westminister, MD 21157
$59.95

MIX

MIX provides all subscribers a simulation program which is designed as an introduction to the system. It is intended for use before going online. The tutorials provide information on basic MIX menus and may be copied for use by students. A User Guide is included.

AVAILABLE FROM:
MIX
EMS/McGraw-Hill
9855 West 78th Street
Eden Prairie, MN 55344
$99

Next Steps with Computers in the Classroom: Telecommunications

A 28-minute color videotape which gives an overview of online communication, modems, electronic bulletin boards and using online searching strategies with students to increase higher level thinking skills.

AVAILABLE FROM:
PBS Video
1320 Braddock Place
Alexandria, VA 22314
$130

Online Database Simulation

A set of exercises designed and produced to introduce students to the features of online databases. The package includes tutorial, modeling and problem solving activities. A teacher's manual, transparencies and three program disks are included. For more information contact TIES at 612/631-3731.

ONLINE: Information Retrieval

A tutorial with elements of simulation. The activities help students become familiar with electronic searching for bibliographic data. Understanding terminology associated with online searching and how to develop a search strategy are major themes. The software has a built-in management system to help teachers evaluate student mastery and record test results. Student activity sheets and black line masters are included.

AVAILABLE FROM:
Ruth Sather
Combase, Inc.
2120 Moonlight Bay Drive
Altoona, WI 54720
$95

SimuComm

Simulates three commonly used online communication services, electronic mail, a bulletin board and an online database. The program also simulates setting up and operating a modem and presents basic vocabulary. Each SimuComm disk will allow up to 30 users to send and receive short mail messages, post bulletins and search a database of up to ten records. The database can be modified or entirely replaced by the teacher.

AVAILABLE FROM:
CUE, Inc.
Softswap
P.O. Box 2087
Menlo Park, CA 94026
$10

Window on Telecommunications

Has been designed as both a tutorial and simulation of the basic vocabulary of the online world. It contains several off-line activities which present students with the basic vocabulary and operation of online communication.

AVAILABLE FROM:
Exsym
301 North Harrison Street
Building B, Suite 435
Princeton, NJ 08540
$79.95

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*X*Change*

X*Change services are delivered to computers over television cable lines. X*Change provides current news directly from world news wire services such as Associated Press, TASS, Agence France Presse, Canadian Press and Kyodo of Japan. As part of the basic cable service there is no cost except a one-time charge for the X*Change software, decoder box, cables and installation instructions.

AVAILABLE FROM:
XPress Information Services, Ltd.
Regency Plaza One
4643 South Ulster Street
Suite 340
Denver, CO 80237
$125 (one-time fee)

Chapter 2

INSTRUCTIONAL STRATEGIES

- *Learner Outcomes*
- *Curriculum Activities*

INSTRUCTIONAL STRATEGIES

LEARNER OUTCOMES

KNOWLEDGE

The following learner outcomes and curriculum activities are listed to help you integrate online skills into the curriculum.

Students will recognize, understand and appreciate

1. What online searching and electronic messaging is.
2. Basic online searching and electronic messaging terminology.
3. The types of technology needed to conduct online searching and electronic messaging.
4. The variety of databases, electronic bulletin boards, forums and conferences available online.
5. The use of print materials which can provide help in designing online search strategy and in identifying correct online search terminology.
6. The advantages and disadvantages of online searching and electronic messaging.
7. How databases are being used today and how their availability is affecting the organization, collection and cost of obtaining information.
8. That there are different access points to information stored in electronic databases and electronic message systems.
9. The ethics and manners of electronic messaging and online searching.
10. That there are many ways to get or give information, including electronic messaging and online searching.
11. That using online communication correctly is an efficient way to find and communicate information.
12. That using online communication correctly can be a critical factor in locating valuable electronic information.
13. How online communication can expand daily contacts and personal experiences to a global level.

APPLICATION

Students will

1. Design and organize appropriate online search strategies for any selected topic before conducting an actual online search.
2. Use online searching in order to acquire data which can be used to generate information for a class or personal project.
4. Select and use appropriate electronic messaging applications in order to acquire and generate needed information.

INTEGRATION

Students will

1. Intrepret and evaluate bibliographic records or data to determine if information found during an online search is likely to be relevant to a need.
2. Evaluate, analyze and synthesize information obtained from multiple online sources.

ONLINE FOR THINKING

The following activities are samples of online communication activities which can be integrated into the curriculum areas of language arts, social studies, math and science. Since these activities are general in nature, teachers in other subject areas may gain ideas about how to incorporate online communication into their own subject area or grade level. ***The companion to this guide, Online for Thinking, contains complete units and detailed lesson plans for using online communication in various curriculum areas and grade levels. For more information about this publication contact the Minnesota Department of Education's Instructional Design Section at (612) 296-4068.***

CURRICULUM ACTIVITIES

LANGUAGE ARTS PROJECTS

The following activities use electronic messaging or online searching. Many are based on information available on the MIX system or DataNet.

Pen Pals — To become better, more effective writers, students need a place to do "real" writing. Pen pals provide an opportunity for your students to communicate with distant students on a variety of themes at a mutually agreed upon pace and on mutually agreed upon themes. Pen pal opportunities are available for all grade levels. Connections are available across the United States, and there is an increasing number of international connections available as well. The KinderPals project provides an opportunity for sixth-grade and kindergarten students to work cooperatively at letter writing.

KidChat — KidChat provides a series of online forums in which students can write about a wide variety of issues. The first KidChat, held last spring, focused on an "ideal school" from a student's eye view. KidChats will be scheduled each month (excluding December and June) throughout the school year. Possible topics include: The Presidential Election, A Kid's Run TV Network, The World of 2020, Drug Use, Gun Control, World Peace, Endangered Species, Self-Image, Ecology, and How to Make the World a Better Place.

Newswire — Participate in the creation of a bi-monthly international student newspaper. Contribute a story and receive a hard copy class set of NewsWires or download the online version, and allow your students to format and print it themselves. Contributions from all grade levels are welcome.

Anthology — Contribute examples of your students' writing to the MIX Anthology and receive a hard copy version. Essays, creative writing and poetry are all encouraged. Students of all ages may contribute.

Round Robin

Join a team of classrooms across the nation as they cooperatively agree on the elements of an exciting story. Once a rotation schedule is agreed on, each classroom has ample time, using the writing process and electronic messaging, to provide their chapter in the continuing saga. Watch the perspective of students in different parts of the nation, as they influence the character development in a shared piece of written literature.

Write On

Participate in one or more monthly writing projects for your classroom. Share your students' creative writing with others and discuss your successes and frustrations with other teachers. Find ideas and suggestions on how to integrate monthly themes into your curriculum.

Project Orillas

Orillas, or "from shore to shore," provides opportunities for paired classrooms in the U.S., Argentina, French-speaking Canada, Mexico and Puerto Rico to increase proficiency in one or more languages through regular communication with a distant class, called a "sister class." Teachers in both classes plan joint activities such as student journalism or cross-cultural investigations.

SCIENCE/PROBLEM-SOLVING PROJECTS

Physics Join in as many as three high school physical science experiments each semester. Actual topics are decided by the participants. Current ideas include: tracking earth satellites, sunspots and climate change, amateur rocket trajectories, speed of sound and slinging water balloons.

Plants Plant growing contests held each spring and fall involve students in learning about factors that affect plant growth by growing them from seeds, employing different strategies to encourage growth, measuring their weekly growth and comparing it with data sent in by other participating classrooms. Growth data can be used to generate graphs. Contest winners receive prizes.

Weather Input your local weather data and build an online database of local weather information.

Weather Data Weather maps, tables, etc., from U.S. Weather Service

Nature Center Give your students the opportunity to ask questions about animals and their habitat and get answers from the nature center experts.

Zoo Want to know the prey of a rattlesnake? A camel's habitat? The MIX/ZOO has an easily searchable database on the animals and resources of the Minnesota Zoo. Directions are included to help you and/or your students find articles on animal conservation and many other topics. Watch for contests, too!

Chess An on-line international chess conference, complete with rules, guidelines, sample games and a variety of levels.

Mystery A new and unique activity that classrooms may join several times throughout the year. Each one is a mystery that is different and challenging. When you electronically register to participate in a MIX Mystery you will receive a mysterious package in the mail containing clues which your class must unravel and answer on MIX.

SOCIAL STUDIES PROJECTS

Surveys Geographically distant classes construct and participate in monthly surveys in which they compile and analyze the data collected and report on the results of the survey. Students may use word processing, online databases, spreadsheets and graphing application software in the completion of these tasks. Survey results can be made public locally via letters to the editor of local newspaper articles in school newspapers, district newsletters and letters to public officials.

Politics Have you ever wished you could ask a senator or representative why they voted a certain way on a particular bill? Have you been curious to know whether your governor likes animals or has a pet? Electronic politics conferences offer students the opportunity to pose questions to a variety of political figures.

Decision Making Build critical thinking and decision making skills by examining the consequences of decisions made while playing roles in a series of simulated situations. Match your classroom or individual student with a partner in a remote location to play an online version of Tom Snyder's popular global conflict simulation for students, The Other Side.

Business Simulation This activity is designed to stimulate students' interests in Business Education as well as computer technology. The simulation centers around a fictitious company called Monarch Toys. Classes from around the world assume the roles of the various departments of a large company (payroll, customer service, etc.) and participate in a valuable cross-cultural exchange of ideas and varied business practices using computer technology in a process which will simulate an international business environment and creatively explore the innovative side of modern business technology.

International Exchanges Participate in activities such as connecting your classroom with the United Nations Pavilion at EXPO'88 in Brisbane, Australia, or making a Foreign Visit for global cultural exchange with students online from abroad. (Because of high costs of international telecommunication connections for participants abroad, these opportunities are usually organized as specific short-term activities.)

DATANET ACTIVITY

COMMUNITY PROFILE

DataNet is a Minnesota online database available to all schools in the state for a small charge. The following activity, created by Ron Swanberg of Winthrop Public Schools, is only one example of many online searching projects students can become involved in by using this database.

Introduction

Using the procedures you learned to log on to DataNet, complete the following community profile for your city or township.

1 In what county do you live?_____
2. What is your county code?_____
3. In what city or township do you live?_____
4. What is the MCD code for your city or township?_____

Demographics-Housing

My community has _____ owned housing units and _____rented housing units. There are _____ vacant housing units. Most of the housing units in my community were built between the years _____ and_____. The second largest housing spurt occurred between the years of _____and_____. There are _____ mobile homes or trailers in my community. The average monthly cost of a mortgaged house is _____ , while the average gross rent for a house would be _____ . If I were to buy a home in my community, I would find the average value (owner-occupied, non-condominum housing unit) to be approximately _____ . Most of the homes in my community are heated by _____ . The source of water for most homes comes from _____ . There are _____ houses that lack complete plumbing facilities.

Demographics-Employment

The average family income for our community was _____ in 1979. In that year, there were _____ families between the ages of 15 to 64 that had incomes below the poverty level.

There are _____ employed persons in my community over the age of 16. _____ of these people were involved in the field of education services. Males make up _____% of the labor force and females make up the remaining _____%.

There were _____ workers who traveled less than five minutes to work. Car pooling is increasing in popularity, with _____% of the people sharing rides. There are _____% of the people who use public transportation to and from work, and _____% who walk to work.

Chapter 3 GETTING STARTED

The Basics

GETTING STARTED

THE BASICS

This section discusses the necessary hardware and software you will need to begin using online communication.

What is online communication?

Online communication is a form of telecommunications. Generally, any telephone conversation qualifies as a form of telecommunicating, since the term means communicating at a distance. But in computer language, telecommunications usually means telephone communication between computers. All you really need is a phone line, a computer, a modem and a communications program. Let's take a quick look at each of these components.

COMPUTERS

Many kinds of computers are available today. Each brand has its own strengths and weaknesses. Since most computers can be used for online communication, select the kind you are most comfortable using.

MODEMS

What can I do with a modem?

A modem allows you to make a telephone call from your computer to other computers and transfer information back and forth.

Modems allow computers to exchange data over normal telephone lines. A modem modulates a computer's internal language into tones your phone line can carry. At the other end of the line, the receiving computer uses its modem to demodulate the incoming signal back into the kind of information a computer can understand. That's where the name of the device comes from. (modulate-demodulate, or modem).

How do I connect my modem to my computer?

There are two basic types of modems—internal and external. Both plug in, either inside or outside the computer.

What charges will I incur using a modem?

The phone company usually charges the same rate for a computer call as it does a voice call. Thus, it pays to make local calls when possible. Beyond that, most information services charge for usage by the minute. Some people use Tymnet or Telenet which are continentwide communication networks devoted exclusively to low-cost computer communication.

What is the difference between a 300-baud and 1200-baud modem?

The speed at which modems send and receive information is measured in bits per second or bauds. A 300-baud modem will send a little more than one double-spaced page per minute. A 1200-baud modem is four times faster and will send more than four pages per minute. The speed rate is important when paying long distance phone charges. The longer you are online, the more you will pay.

I have a 300-baud modem, can I communicate with 1200-baud modems?

Yes, but at 300 baud, not 1200 baud. In any connection, both modems must operate at the same speed. Modems which are communicating can only run at the highest speed common to both modems. Your 300-baud modem can't operate at 1200 baud, but your 1200-baud modem can operate at 300 baud.

What features should I look for in a modem?

A 1200-baud modem makes sense. It will cost more than a 300 baud modem, but you will probably recoup the cost in reduced phone charges. Modems that are 2400 or 9600 baud may not be practical since much online communication is taking place at 300 or 1200 baud. Remember, if you have a 2400-baud modem and are trying to communicate with a 300-baud modem, yours will only operate at 300 baud. A built-in speaker is useful for detecting whether or not a call is successful. If portability is an issue, consider an external modem. They can be easily moved from computer to computer. Finally, consider getting a modem with automatic dialing. With the right software, these modems allow you to store phone numbers in the computer memory and dial them by pushing a single key.

How much does a modem cost?

Many types of modems are available. Local computer dealers usually have a selection of modems for the computers they sell. The following list serves only as a guide to some commonly used modems. Prices vary and model numbers may change.

SOURCE	MODEL	PRICE	BAUD
Anchor Automation Inc. 6913 Valjean Avenue Van Nuys, CA 91406	Volksmodem Volksmodem12	$79.95 $299	300 1200
Apple Computer Inc. 20525 Mariani Avenue Cupertino, CA 95014	Personal	$300	1200
Hayes Microcomputer(IBM) 5923 Peachtree Industrial Blvd. Norcross, BA 30092	Smartmodem1200 Smartmodem 1200B Micromodem IIE	$439 $599 $289	1200 1200 (IBM) 300
Multi-Tech Systems 82 Second Avenue SE New Brighton, MN 55112	MultiModem MultiModem PC	$549 $499	1200 1200 (IBM)
Noviation Inc. 20409 Prairie Street Chatsworth, CA 91311	Smart-Cat Plus Apple-Cat II Access 1-2-3	$499 $595 $595	1200 1200 1200 (IBM)
Prometheus 45277 Fremont Blvd. Fremont, CA 94538	ProModem 1200A ProModem 1200B	$295 $399	1200 1200 (IBM)

COMMUNICATIONS PROGRAMS

Computers use software to control the modem and make the computer and modem operate correctly together. There are many communication software packages to choose from, so one should be available for whichever type of computer you use for online communicating.

How important is communications software?

Software is the key. Anything you want to do online must be done with software. If you want to operate at 1200 baud, your modem and software must both have that capability. If you want to store numbers and automatically dial them from the keyboard, both your modem and your software must include this feature.

What features should I look for in communications software?

Communication software should be menu or mouse driven. Also look for software that includes automatic dialing features and a capture buffer which lets you "catch and store" information in your computer memory. Some software lets you write and compose off-line and send that information, or "file," after you log on. That is important if phone charges are an issue. If you wish to send information written with a word processor, be sure the software lets you save word processing documents. For example, if you use Appleworks and have a "file" saved that you wish to send online, your communications software must have the capability to store and send Appleworks files and data. Some software can also send online information to a data disk or your printer. If you want hard copies of online information this is an important feature to consider.

A short booklet titled "Telecommunications Planning Guide For Educators" has also been developed by MIX. It is available free from MIX, 9855 West 78th Street, Eden Prairie, MN 55344.

What software are other people using?

Apple Access I
Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA

ASCII Pro
United Software Industries Inc.
1880 Century Park East, Suite 311
Century City, CA 90067

MouseTalk
PinPoint Publishing
5865 Doyle Street, Suite 112
Emeryville, CA 94608

Point to Point
Pinpoint Publishing
Box 13323
Oakland, CA 94661

QMODEM
The Forbin Project (public domain)
c/o John Friell III
4945 Colfax Avenue South
Minneapolis, MN 55409

Smartcom II
Hayes Microcomputer Products
5923 Peachtree Industrial Blvd.
Norcross, GA 30092

PC-Talk
Freeware
Tiburon, CA

PFS: Access
Software Publishing Corporation
1901 Landings Drive
Mountain View, CA 94043

Pinpoint
Pinpoint Publishing
Box 13323
Oakland, CA 94661

Terminus
Quart
2525 West Evans, Suite 220
Denver, CO 80219

Write Away
Midwest Software Associates
1160 Apple Seed Lane
St. Louis, MO 63132

TELEPHONES

What are my phone needs?

Perhaps the biggest obstacle to online communication is hooking up the modem to a school telephone system. Unless you have a separate line for your modem, your school administration will have to make arrangements with your phone system installer to install the proper line.

The phone line must be one that can't be interrupted by intercom or other calls once you are online. Your calls must be able to be dialed directly, and not have to be placed through a "human operator" at your school switchboard. You will also need long distance access. The phone system should have modular jacks. Adapters are available at most electronic stores.

Many different phone options are available when trying to communicate online. Users may make a local phone call, direct dial long distance, use Tymnet or Telenet; national networks with local phone numbers that connect to most major databases, or use a WATS line.

Where should I locate the phone connection?

Some questions to answer before putting in a dedicated online phone connection are:
Will the media specialist be the main person using the modem to look up information for student and staff research? Will the modem be used to teach students in various classes how to use telecommunications? Will instruction take place in the media center or classrooms? Will students and staff members be using the modem themselves?

Is any special security necessary?

Most modems do not need to be hooked up to a telephone to operate, they just use a phone line. If access to the communications software is controlled, few phone charge problems should come up. In some cases it will be important to keep system passwords very private.

How can I get help?

Any one of the online committee members listed in the front of this guide will be happy to help or answer questions. You may write, call or send them an electronic message on MIX. The budget planning sheet on the following page, produced by MIX, may help you plan for your online communication needs and costs.

TELECOMMUNICATIONS BUDGET WORKSHEET

Start up Costs

1. Do you have a modem? — Modem cost _____
2. If purchasing an external modem, does your computer have a serial port or serial card that can be dedicated to a modem? Average cost of a serial card is $150. — Serial card cost _____
3. Is the proper computer-to-modem cable supplied with your modem? Average cost of a modem cable is $25. — Cable cost _____
4. Do you have high quality telecommunications software? — Software cost _____
5. Do you have access to a phone line? — Installation cost _____
6. Does the information service you intend to use have a one-time start up or subscription fee? — One-time subscription cost: _____

TOTAL ESTIMATED STARTUP COSTS _____

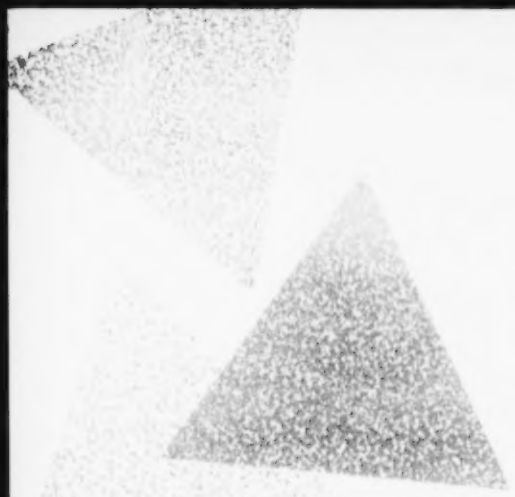
Ongoing Expenses

1. Will you have to pay the local phone company a monthly fee for a private line? — Monthly line fee _____
2. Will you have to dial long distance to access the desired information service? If yes, multiply the estimated number of hours of usage per month by the hourly fees charged by your long-distance carrier from your building to the city where access is available. Make sure the rates are for the time of day during which you intend to be online. (Average usage is two hours per month.) — Estimated long-distance costs _____
3. Does the information service you intend to use have a flat subscription fee? If the fee is annual, divide it by 12 (months). — Flat subscription fee _____
4. Does the information service you intend to use require you to access it via a packet-switching network? If so, determine if you will be using the service during prime or non-prime time. Multiply the appropriate hourly rate for the packet net by the estimated number of hours you intend to use each month. (Average usage is two hours per month.) — Packet-switching costs _____
5. Does the information service you intend to use charge by the hour for using its services? If so, determine what the usage rates are during prime or non-prime time. Determine what baud rate you will be using (300, 1200 or 2400) and check if the service charges extra for that rate. Multiply this hourly "combined" rate (time of day at what baud rate) by number of hours you intend to use each month.

5a. Does the information service you intend to use have a monthly minimum? If yes, how much is it? Which is greater, the amount you calculated in 5 or the monthly minimum? Enter the greater amount for usage fees. — Usage fees _____

TOTAL ESTIMATED MONTHLY EXPENSES _____

TOTAL ESTIMATED FULL YEAR EXPENSES _____



Chapter 4 ONLINE DIRECTORY

Selected Listing of Online Services

ONLINE DIRECTORY

SELECTED LISTING OF ONLINE SERVICES

Databases and Information Services

Many types of databases and information services are available to schools, teachers and students. The following list is a small selection of popular online services now being used in Minnesota schools. Some things to consider before subscribing to an online service include the types of information available, subscription costs, online charges, ease of system use and the availability of vendor newsletters or support.

BRS

BRS is a general-use service which offers two programs for schools. The first, *BRS Educator* has been designed for K-12 institutions and allows access to hundreds of databases on BRS for an $18 per hour access charge. The second program, *BRS Instructor* has been designed for teaching online searching. It allows access to over 80 databases at a flat access rate of $15 per hour.

FOR MORE INFORMATION CONTACT:
BRS
1200 Route 7
Latham, NY 12110
(800) 833-4707
(518) 783-1161

BXR Information Corner

This system, run by the Internal Revenue Service, has taken on the unusual role as clearinghouse for ALL the free software available for major computers. There is no membership fee and programs sent to your computer are free. Long distance telephone charges do apply.

BULLETIN BOARD NUMBER:
(703) 756-6109

Compuserve

Compuserve has an initial subscription fee of $49.95 with a $12.50 per hour access charge. A full service information retrieval system aimed at the home consumer, Compuserve offers everything from electronic mail, forums, travel information, stock quotes and news services, to home shopping.

FOR MORE INFORMATION CONTACT:
Compuserve
5000 Arlington Centre Blvd.
Columbus, OH 43220
(800) 848-8199
(614) 457-8650

Data Times

Data Times is a newspaper database that accesses approximately 30 newspapers, including the Minneapolis Star and Tribune. An initial subscription fee of $75 plus a $40 per hour access charge includes membership, a user manual, newsletters, system support and a toll free phone number.

FOR MORE INFORMATION CONTACT:
Data Times
Nann B. Setzler
818 N.W. 63rd Street
Oklahoma City, OK 73116
(800) 642-2525

Datanet

Datanet has 13 databases which contain facts, figures and information about Minnesota. The information ranges from land and mineral resources to county business patterns and labor force statistics. Data can be shown on a variety of geographic levels. The user can review general information on a broad statewide level or look at more detailed information for smaller, more centralized areas such as counties, cities and townships.

Datanet also has 70 tables of 1980 census figures for every county, city and township, a ten-year trend line for agricultural crop production by county, an extensive review of over 3,000 lakes, a listing of 68 Minnesota state grants and loans, information about minerals, forestry, urban lands, land ownership, wetlands, school district data and adolescent health figures.

Datanet is a menu-driven system, and so self-explanatory that even inexperienced computer users will find it easy to access. An annual subscription fee of $200 allows unlimited access time for the 1988-89 school year.

FOR MORE INFORMATION CONTACT:
Jim Ramstrom
DataNet Subscription Service
Minnesota State Planning Agency
LL 65 Metro Square Building
7th and Robert Street
St. Paul, MN 55101
(612) 296-2559

Dialog

Dialog is an information service that offers everything from news to research. Three programs are offered that address cost and ease-of-use issues. Dialog offers teachers and administrators access to over 300 databases at an hourly rate that varies according to each database accessed. For example, ERIC is $25 per hour, Super Tech is $109 per hour. The *Classroom Instruction Program*, designed to encourage classroom instruction in online information retrieval, is $15 per hour and provides access to most Dialog databases. *Classmate* is intended for K-12 use and offers access to 50 databases at $15 per hour. This option uses a less complicated search language. Curriculum and training materials are provided for teachers and students free of charge.

FOR MORE INFORMATION CONTACT:
Dialog
3469 Hillview Avenue
Palo Alto, CA 94304
(800) 334-2564

Gemnet

Gemnet offers three unique telecommunication services to schools. The *SCHOOL VIDEO PARTNERSHIP* is a videotape exchange program with another school outside the United States. Gemnet handles all arrangements and videotape conversions. Costs vary from $200 to $350 per year. *INFORMATION SERVICES VIA ELECTRONIC MAIL* is similar to the video exchange except that all international correspondence is done online, not with videotape. Costs vary from $400 to $800 per year. The *COMBINATION PLAN* includes both international electronic mail and video exchanges. Costs vary from $450 to $975 per year.

FOR MORE INFORMATION CONTACT:
Global Education Motivators
Montgomery County Intermediate Building
Paper Mill and Montgomery Avenue
Erdenheim, PA 19118

MEIE

The Microcomputer Electronic Information Exchange is run by the federal government. It serves as a central source of information about all government agency bulletin boards. There is no membership fee, but long distance telephone charges apply.

BULLETIN BOARD NUMBER:
(301-948-5718)

MIX

The Minnesota Department of Education provides online messaging services through MIX, the McGraw-Hill Information Exchange. MIX subscribers have access to:

- Instructional activities for teachers to use with students
- Opportunities for national and international student pen pal exchanges
- Opportunities to be paired with a "sister class" for bilingual content-oriented writing exchanges between classes
- Answers to software and hardware questions from technology experts
- A national and international electronic mail system for educators
- STIX, a national and international electronic mail and conference system for students
- Opportunities to participate in professional development conferences and forums
- A gateway to DataNet, a Minnesota online database

Subscribers can also access MN-NET through MIX. MN-NET provides:

- Conference and workshop information
- Questions and answers on various educational topics
- Direct acess to many Department of Education departments and staff members
- A calendar of Minnesota Department of Education events
- Information about Minnesota Department of Education documents and programs

A MIX price as low as $99, for batch orders, provides unlimited usage for a year. Since the Minnesota Department of Education provides toll-free numbers, there are no long distance telephone charges. Every Minnesota teacher has an opportunity to participate at the same cost.

FOR MORE INFORMATION CONTACT:
Griff Wigley
EMS/McGraw-Hill
9855 West 78th Street
Eden Prairie, MN 55344
(800) 622-6310
(612) 944-4200

PALS

The Project for Automated Library Systems is an online connection for searching the holdings of 44 libraries in Minnesota and North Dakota, including libraries of the Minnesota State University System, Minnesota Community Colleges, three private colleges, 13 state agencies and two University of Minnesota Coordinate Campuses. Keywords are used to access more than 2.7 million bibliographic records. Searches may use Boolean connectors and be limited by format, date and language. No access or subscription fees are charged. Long distance telephone charges may apply.

FOR MORE INFORMATION CONTACT:
Dale Carrison
MSUS/PALS Director
Mankato State University
Mankato, MN 56001
(507) 389-5062

Sci-Net

The Science Network is a bulletin board service available free to Minnesota science teachers and students. Long distance telephone charges will apply. Sci-Net offers ideas for using instructional materials, suggestions for labs and demonstrations, discussion groups for students, a conference on science education and summaries of Minnesota science events and meetings.

FOR MORE INFORMATION CONTACT:
Dr. Richard Clark
Science Education Specialist
Minnesota Department of Education
550 Cedar Street
St. Paul, MN 55101
(612) 296-4071

Wilsonline

Wilsonline contains online bibliographic data on more than half a million articles in the 3,500 periodicals H. W. Wilson Company indexes annually, and more than 60,000 books Wilson catalogs each year. Some popular databases are the Education Index and Readers Guide to Periodical Literature. Pricing starts at $25 per hour depending on the database used.

FOR MORE INFORMATION CONTACT:
H.W. Wilson
950 University Avenue
Bronx, NY 10452
(800) 367-6770

Chapter GLOSSARY

GLOSSARY

Since this booklet was written with the beginner in mind, technical online communication vocabulary has been avoided. Many common terms with which online communicators should be familar are listed below.

Access Point — A data element or part of a record used to retrieve a particular file or record. For example, a keyword assigned to a record by an indexer is one access point, among several others, to that record in the file; **online** as a keyword to retrieve a file about using a modem to search for information from a database.

Baud — A measure of signalling rate equal to the number of signal elements transmitted each second. In most cases, the number of characters which a terminal can type or display in one second is one-tenth the **baud** rate; i.e., a 300-baud modem is capable of 30 characters/second; a 1200-baud terminal is capable of 120 characters/second.

Bibliographic Citation — References in a publication which refer the reader to another source, or that part of a record containing certain information about an article or other printed work sufficient to locate a printed copy of the work. The information usually includes the title, author's name, name of original publication, year or date of publication, etc.

Boolean Logic — A method of logic developed by George Boole, an English mathematician, which uses the logical operators—AND, OR, and NOT— to show relationships between sets or terms. Most (but not all) online systems allow the searcher the use of Boolean logic in developing search strategies.

Connect Time (Access Time) — The amount of time the remote terminal (computer with modem) is connected to the host computer. This measure is usually the basis of cost for online searching.

Database — A collection of information (data) in a form that can be read and processed by a computer. The term **file** is used interchangeably with **database**.

Database Producer — The organization which collects or generates information and produces it in some computer-readable form. Many database producers also publish a print product equivalent to or derived from the machine-readable file.

Database Vendor — A company that provides a user with access to databases stored in a host computer. DIALOG is a vendor that provides CLASSMATE for school use for a fee. Vendors are like a supermarket providing many different products (databases) from many individual companies.

Duplex, Full — In this method of data transfer, both ends can send and receive data at the same time, which decreases the overall time for sending data. It does not change the baud rate.

Duplex, Half — This method lets only one end receive while the other sends. When changing sides there may be very short delays each time. This setup could increase the overall time for sending the data.

Downloading The process of copying part or all of a database, or file, stored in one computer into another computer via online communications. In the context of online searching, a search is performed and the results **downloaded** and stored in the searcher's own computer, generally a microcomputer.

Echo When sending data with the echo option on, you will see double letters like ttthhiiss when typing. The system will check out the character typed against the one sent and will print the character sent. Thus the echo or double typing.

Field A set of characters in a database treated as a unit which denotes a particular kind of data (e.g., author field, title field).

Handshaking The required sequence of signals that are needed to establish communications between systems. This can allow different types of machines to exchange data.

Host Computer This is the computer that manages a computer network. It has all the software and hardware needed to receive, store and send data.

Keyword The significant word or term used when searching a database for information (see Search Strategy).

Link, Communication This is the physical connection from one location or computer to another for the purpose of transmitting data.

Log On (Log On/Log In) The procedure for accessing another computer. This can be simply hitting the return key (saying, in effect, "I am here") or a complicated sequence of identification codes, account numbers and passwords.

Log Off (Log Out) This is the breaking of communications with the host system in an orderly fashion. On some systems if you do not log off correctly you will still be connected and in some cases, could be getting charged.

Mode, Offline This is the ability of some systems to let you create inquiries or notes, letters, or other information and then switch to online to send the data to the host system to be acted upon.

Mode, Online This is actually being on the system, communicating with the system or parts of it.

Multiaccess This is a function of large systems. It allows many people or groups to use terminals or satellite computers to access the system all at the same time. Universities and government agencies usually have multiaccess systems.

Password Your confidential identification code, used with your user number to gain access to an online database service.

Protocol, Data Communications	This is the set of rules that must be obeyed so there is an orderly exchange of data between the two parties involved. This set of rules also covers the physical, electrical and functional characteristics of the link between the two systems.
Record	One entry in a database. For example, a name and address would be one record in an address database.
Search Strategies	A plan of action for accessing a database and retrieving the desired items. A search strategy may include keywords, statements as to their desired relationships and instructions concerning the sequence with which they are to be searched by the computer.
Special Interest Group (SIG)	A special section of a bulletin board system or service that is set up for users who share a particular interest, such as by computer type or hobbies.
System Operator (SYSOP)	The person who has the responsibility of running and maintaining a bulletin board.
Update	The material most recently added to a database. Also the process of adding material to a database.
Upload	To transfer or send files (information) from your computer to another.

Chapter

SELECTED RESOURCES

SELECTED RESOURCES

The available sources of information about online communication would fill this guide. The following list serves only as a guide to getting started online.

JOURNAL ARTICLES

Gabel, David A. "Modems." *Personal Computing* (January 1985): 109-119.

Keaton, Barry. "Choosing and Using Telecommunication Software." *Creative Computing* (February 1985): 101-113.

McGinty, Tony. "Modems." *Electronic Learning* (November 1984): 42.

"Telecommunication Applications." *Electronic Learning* (November 1984): 44.

Tennis, Jean. "Shopping for a Modem." *Electronic Learning* (September 1985): 28.

Tennis, Jean. "Hooking up a Modem." *Electronic Learning* (October 1985): 14.

JOURNALS

A+ MAGAZINE
Ziff David, One Park Avenue, New York, NY 10016.

BULLETIN BOARD SYSTEMS JOURNAL (previously called Plumb)
Bulletin Board Systems, Dept. VV, P.O. Box 3000, Denville, NJ 07834.

CLASSROOM COMPUTER LEARNING
Holly Brady, 2451 East River Road, Dayton, OH 45439.

COMPUTE!
Compute Publications, Inc., 324 West Wendover Avenue, Suite 200, Greensboro, NC 27408.

COMPUTING TEACHER
David Moursund, University of Oregon, 1787 Agate Street, Eugene, OR 97403.

DATABASE: THE MAGAZINE OF DATABASE REFERENCE AND REVIEW
Online Inc., 11 Tannery Lane, Weston, CT 06883.

DATABASE SEARCHER
Dept. VV, P.O. Box 3000, Denville, NJ 07834.

DATABASE UPDATE
Database Update, 10076 Boca Entrada Blvd., Boca Raton, FL 33433.

DIAL-OUT
Dial-Out, 175-5th Avenue, New York, NY 10101.

ELECTRONIC LEARNING
Scholastic Inc., P.O. Box 645, Lyndhurst, NY 07071.

EMSIE ONLINE EDUCATOR
EMS/McGraw-Hill, 9855 West 78th, Eden Prairie, MN 55344.

HANDS ON!
Technical Education Research Centers (TERC), 1696 Massachusetts Avenue, Cambridge, MA 02138.

INFORWORLD
InforWorld, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025.

LINK-UP/COMMUNICATIONS AND THE SMALL COMPUTER
3938 Meadowbrook Road, Minneapolis, MN 55426.

NETWEAVER
Electronic Networking Association, c/o Executive Technology Associates, Inc., 2744 Washington Street, Allentown, PA 18104.

ONLINE: THE MAGAZINE OF ONLINE INFORMATION SYSTEMS
Online, Inc., 11 Tannery Lane, Weston, CT 06883.

ONLINE ACCESS GUIDE
53 East Jackson, Suite 1750, Chicago, IL 60604.

ONLINE CHRONICLE
Dialog Information Retrieval Service, 3460 Hillview Avenue, Palo Alto, CA 94304.

ONLINE HOTLINE AND NEWSLETTER
Information Intelligence Inc., P.O. Box 31098, Phoenix, AZ 85046.

ONLINE TODAY
CompuServe, Inc., P.O. Box 639, Columbus, OH 43216.

PERSONAL COMPUTING
Hayden Publishing Co. Inc., 50 Essex Street, Rochelle Park, NY 07662.

SMALL COMPUTERS IN LIBRARIES
Meckler Publications, 11 Ferry Lane West, Westport, CT 06880.

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